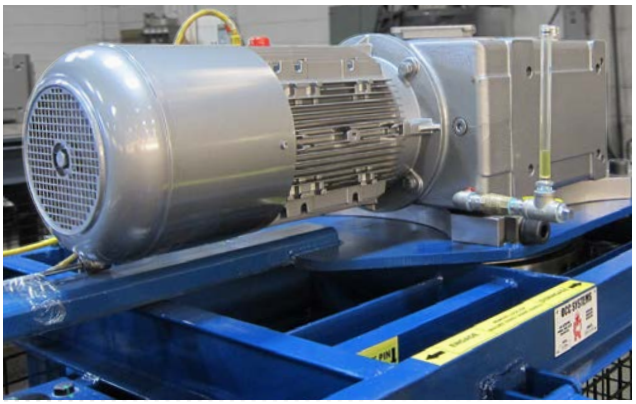
Configurable Solutions for Special Drive Applications

Reliable, High-Performance Operation for Manufacturing



Customer-Focused Design, Service, and Support

Drive Solutions for the Automotive Industry

Case Study: OCC Systems

NORD® DRIVESYSTEMS

Automotive Production
Manufacturing & Assembly

Gear Unit
Overhead Conveyor Drive

Motor
IE3 with extended rotor shaft, custom brake connections, and hex head for positioning

"OCC is able to bring all of the parts and pieces together to supply fully integrated systems to our clients. NORD has been a great partner for many years, and this project is a great example of that partnership."

- Craig Dahl, Parts & Service Manager, OCC

A Better Conveyor

Contrary to popular opinion, Henry Ford didn't invent the automotive assembly line. That was Ransom Olds of Oldsmobile fame, who reportedly patented his novel manufacturing approach in 1901. Twelve years later, Ford simply took Olds' good idea and made it better. Much better, it seems. Rather than using a stationary line like Oldsmobile, the Ford Motor Company founder added a moving conveyor, thereby reducing worker fatigue while drastically increasing production throughput. The concept stuck, and more than a century later, the moving assembly line remains an integral piece of most automobile manufacturing.

More Efficient Motion

As with any electromechanical system, there's always room for improvement. Craig Dahl knows this quite well. As manager of the parts and service department at OCC Conveyor Inc., he was a member of the team called upon to design and build a more efficient means of driving the assembly lines at a leading automaker's plants in the United States, Canada, and Mexico.

The heart of what is now known as the "OCC Systems Torque Arm Conveyor Drive" A custom-built gearbox solution that utilizes the Overhead Conveyor Drive gear unit from NORD DRIVESYSTEMS, who collaborated extensively with OCC on its design and implementation.

OCC Systems Engineering Manager, Carl Wingert, working with NORD developed "the extended shaft gearbox specifically for this application," And because conveyor systems in different automotive plants will require different horsepower ratings and output speeds, NORD provides OCC with a complete range of gearboxes to accommodate. So far, that includes everything from 2 horsepower all the way up to 20 horsepower, and conveyor speeds from 5 to 70 feet per minute. Working directly with automotive customers and NORD, OCC has implemented high speed indexing inverted conveyors that are run at 125 FPM.

Fighting Friction

One key feature of the Torque Arm Conveyor Drive is its ability to use the ANSI X458 and X678 (American National Standards Institute) and comparable styles of Drop Forged Rivetless Chain, an automotive standard that dates back to Henry

OCC SYSTEMS Est. 1945

The Customer in Focus

Founded in 1945, OCC Systems is privately-owned turnkey material handling and installation company that specializes in the design and integration of material handling equipment, automation, tooling, and robotics for the automotive and general industrial markets. Their experienced team provides the latest technologies in manufacturing, maintenance, engineering, installation, project management, and estimating for big name OEM auto manufacturers, heavy equipment, and robotics manufacturers.

Ford's days. It also eliminates all V-belts thanks to an integrated gear motor and brake, has a backup bar and crank arm that allows two systems—one passive, the other active—to work in tandem, and numerous design enhancements such as centralized lubrication, simplified torque settings, and bolt-on adjustable legs for easy leveling.

"By moving away from belts and pulleys, we eliminated numerous connection points, each of which increases friction and leads to power loss," says Dahl. "The net effect is greater energy efficiency, which we calculate at about 5% or more. That might not sound like a lot, but the annual savings in electrical costs are significant for a large manufacturer with hundreds of multi-kilowatt motors on the production floor."

Perhaps even more important is the ease of maintenance and reduction in conveyor downtime. Not only are the new systems faster to service and repair, but because of the backup bar and crank arm mentioned earlier, a drive that fails during a production shift can quickly be brought online by switching to the backup system, allowing technicians to service the defective unit after hours.

Building Confidence

Dahl notes that this last benefit, even more so than the system's energy efficiency, is what gets automotive maintenance people so excited when they see the new design. "Talk to anyone responsible for keeping a plant running and that's what they gravitate to," he says. "In fact, I had a customer in here a few months ago who was visiting for another project. He took one look at the Torque Arm Drive and immediately pulled out his phone to take some pictures so he could show his boss. He was pretty excited."

Standardization is similarly important, says Dahl. That's why OCC Systems—together with their customer—decided early on to work with NORD in developing the extended shaft gear drive, which again, forms the heart of this conveyor drive unit. "NORD has been a great partner for many years, and this is a great example of that. Between its greater efficiency and modular, easily maintained construction, I look forward to seeing more of these units deployed in other assembly lines. I have a lot of confidence in this product."

NORD & OCC Partnership

OCC Systems partnered extensively with NORD DRIVESYSTEMS to develop the innovative, custom-built Torque Arm Conveyor Drive solution, a more efficient means of driving automotive assembly lines.

The Project at a Glance

The Torque Arm Conveyor Drive was developed when a customer asked OCC to find a more energy-efficient and maintenance-friendly replacement for the legacy "Floating Frame" conveyor drives in service at that time. Working closely with the customer and NORD, OCC soon developed a unit containing far fewer parts and a modular construction. The customer approved the design and OCC quickly went into production—last year alone, they installed more than 180 of the innovative drive systems.

Additional References and Case Studies:

www.nord.com/references

US

NORD Gear Corporation
Waunakee, WI
800 NORD Drive
Waunakee, WI 53597
Tel. 888.314.6673
info.us@nord.com
www.nord.com

Corona, CA
1180 Railroad St.
Corona, CA 92882
Tel. 888.314.6673
info.us@nord.com

Charlotte, NC
300E Forsyth Hall Dr.
Charlotte, NC 28273
Tel. 888.314.6673
info.us@nord.com

CA

NORD Gear Limited
Brampton, ON
41 West Drive
Brampton, ON L6T4A1
Tel. 800.668.4378
info.ca@nord.com

MX

NORD DRIVE SYSTEMS SA DE CV
Queretaro, Mexico
Av. Industria Textil B.6
Parque Industrial PYME, Huimilpan
QRO - Mexico 76950
Tel. 52 442 688 7110
info.mx@nord.com